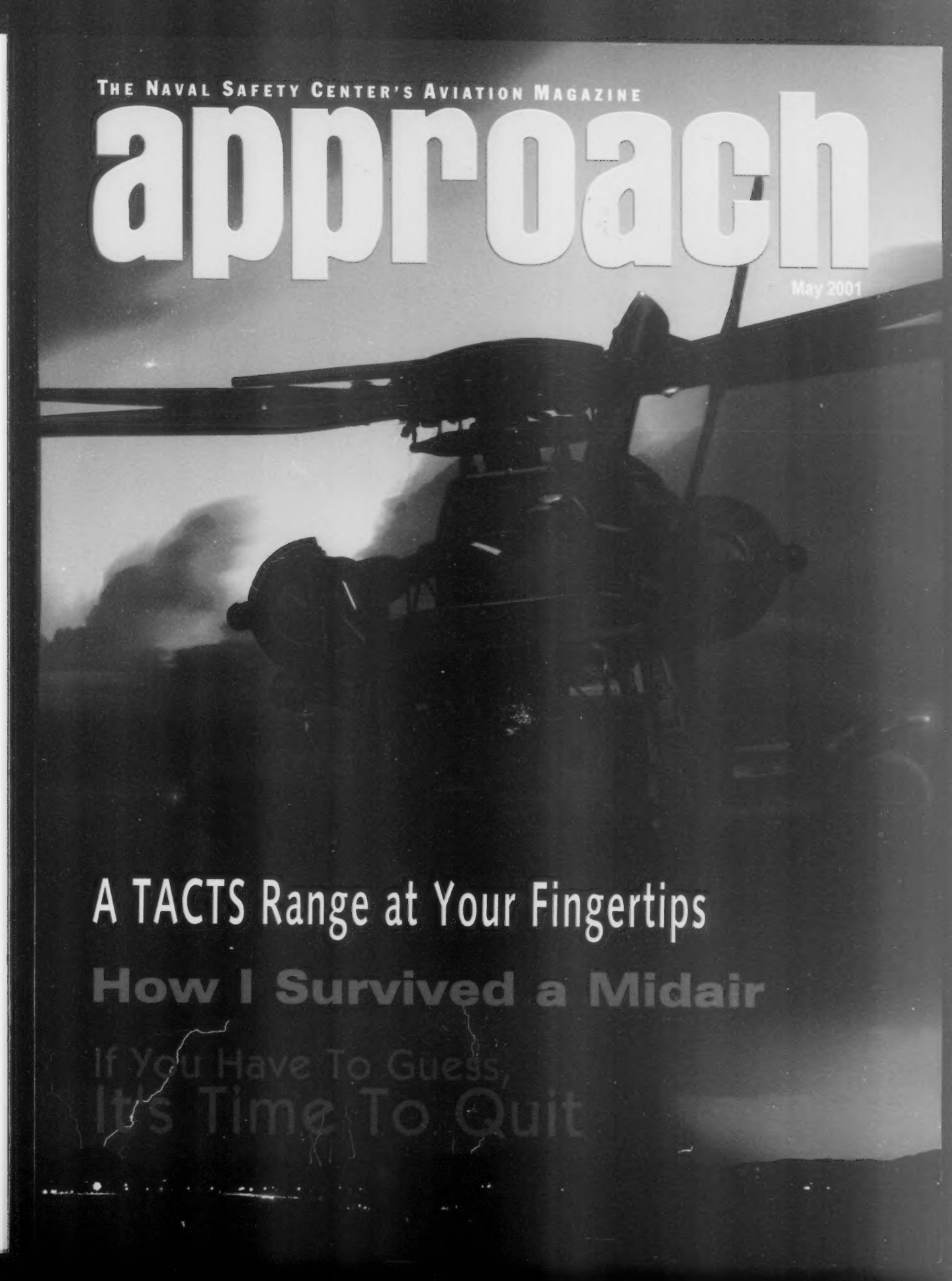
THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE

approach

May 2001



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May 2001 Volume 46 No. 05
On the Cover Photo-composite of a CH53 in flight by Allan Amen.

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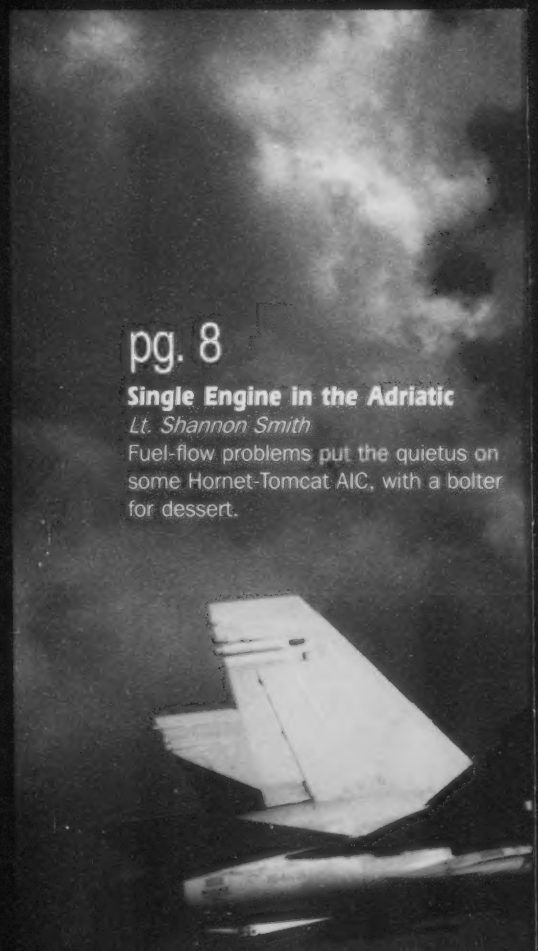

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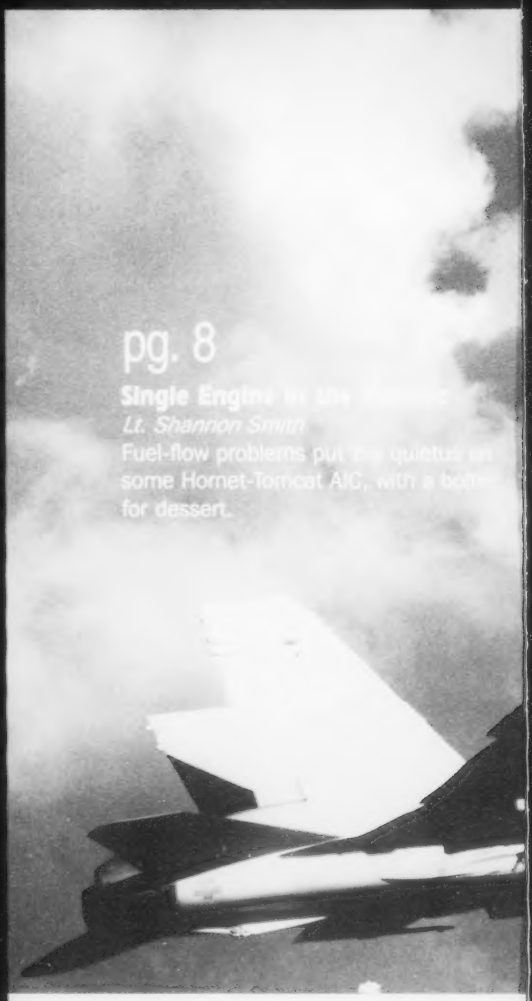

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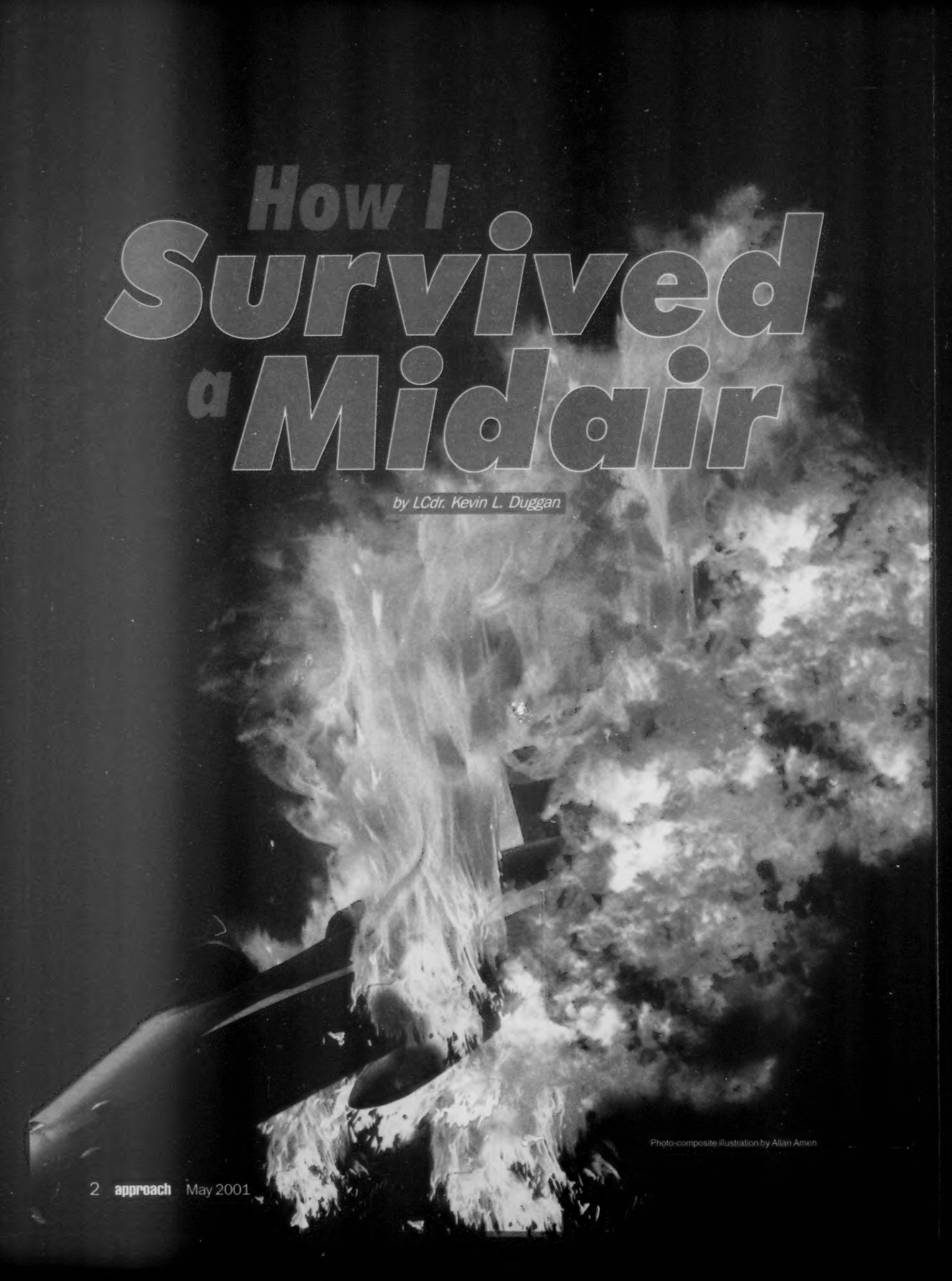

Photo-composite illustration by Allan Amen

Three and a half years have passed, but it seems like yesterday: briefing an SFARP division self-escort hop into B-17, then walking out of the hangar. Minimal bogeys, TACTS control, pinky launch. A beautiful day had given way to one of those crisp, high-desert evenings in January. The temperature drops fast in the desert, and I remember thinking, "I should have on a dry-suit liner," as I watched the sunset.

An hour later and less than three minutes into our run, I pulled the handle. It didn't take a lot of thought, and it felt like a car wreck. Dash 2 and Dash 4 pulled away, temporarily blinded by the fireball from my midair. Plane captains on the ramp, 60 miles away, said they saw an orange glow on the horizon. Dash 3 died in the blink of an eye. I survived.

Survivor's guilt is real, even when everybody tells you it isn't your fault. I could have done a thousand things differently, and I don't have the time or space here to explain all the factors leading to the midair. But I can pass on some do-as-I-say-not-as-I-did thoughts on survival.

All I knew after pulling the handle was that I was alive. I saw wreckage falling away. Things seemed surreal: the seat and I stabilized, descended and separated. The opening shock was intense. Some long-ago training took over as I looked up at the canopy, and I pulled the beaded handles inflating my LPU. I pulled off my oxygen mask and raised the clear visor, which had snapped down with the opening shock of the parachute.

Then I panicked. I wasn't prepared for the anxiety associated with a sudden, unexpected ejection. At 12,000 feet, the most important thing in the world to me was to talk to somebody, to tell anybody that I was alive. The feeling was overpowering. I wrestled my PRC-90 from its pocket and fumbled with it in the dark. Then I unsnapped the flashlight that, amazingly, was still with me. With the light, I could see my breath and the radio. I realized I should get ready for landing. Looking down at the darkness, I suddenly became terrified that I was going to lose the flashlight, even though I had another in my vest.

As I tried to secure the flashlight in my G-suit pocket with my numb hands, I fumbled the radio. As it fell, I remember not being too concerned because I figured it was tied to my vest. It wasn't. In the Gulf, we had to switch between PRC-90s and PRC-112s, depending on our mission. I'd never secured it since I'd gotten back home.

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ORM Corner

Is It Live, or Is It Memorex?

by LCdr. Dabney Kern

Within a month after reporting back to LAMPS for my second sea tour, I was assigned as the detachment OinC on a grueling, two-month outing that was certain to test not only my leadership abilities, but, more importantly, my credit card limit. We were spending a week in New York City for Fleet Week and a week in Newport, then making two long visits to Halifax and a week stop-over in Boston to celebrate Independence Day. As I said, brutal. Right away I knew why the command couldn't find someone with more experience to take the job.

Some bonus training was thrown in. Sandwiched between the visits to Halifax during the latter part of the cruise was a multinational exercise–MARCOT–pitting several international naval forces against one another in a war-at-sea exercise (WASEX). This exercise was to last just a few weeks, but being one of only two helicopters on the orange force, our detachment anticipated flying the bulk of our flight-hour allocation during the WASEX, which conveniently wrapped up at the end of the fiscal year.

Our mission was simple: stay out of trouble, fly our allocation, and participate in MARCOT. Since I was the squadron's junior OinC, I didn't want to screw up a no-brainer.

We started out flying just what we needed to stay proficient prior to MARCOT. En route, ATMs were depleted, plastic was melted, and liberty incidents miraculously were avoided. Life was good.

Finally, MARCOT was upon us. Leaving Halifax and the marathon tactics briefings behind, we loaded up on rubber bullets and simulated missiles. We had saved our hours, we had prepared for this moment, and we were ready.

The weather, however, was not. All the training and flight-hour calculations could not have prepared us for what we were up against: fog. And not just any fog, Nova Scotia fog. Fog you could cut with a knife. Thickest fog any of us on board had ever seen. There was nothing we could do. The embarked AGC said it could stay for days, even weeks. We were dejected and miserable.

As the days counted down, the end of the quarter grew closer, and we still had gobs of flight hours to get rid of. The blue forces stood poised to kick our butt, and we could do nothing about it. The battle-group air coordinator intended to task us to the max if the weather ever cleared, but, goo-wise, there was no end in sight. I was getting close to throwing in the towel and giving our flight hours back. Oh, the grief I'd catch from home guard.

Just as I was dialing the skipper's number, the AGC brought me some mixed news on the fifth day of fog. There was to be a clearing for a few days, and then the fog would set back in. I grew optimistic and formed an aggressive plan to fly around the clock when the weather broke. The detachment was getting stir crazy, and the pilots were ready to fly. Everyone committed themselves to this plan with enthusiasm.

ORM Corner
is a bi-monthly department

Please send your questions, comments or recommendations to Mr. John Mahoney or to Capt. Denis M. Faherty, Director Operational Risk Management. Mr. Mahoney's address is: Code 08, Naval Safety Center, 375 A St., Norfolk, VA 23511-4299. (757) 444-3520, ext. 7310 (DSN-564). E-mail: Jmahoney@safetycenter.navy.mil

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A quick reapplication of ORM theory made it all too easy. The benefit: flight hours and training. The risk: death.

Photo-composite by Allan Amen

The AGC had nailed it on the head, and by the end of fog day number six, a hole appeared in the haze. In the midst of excitement and energy, we took to the skies. After a bumpy start, the weather held, and we continued to fly around the clock for the better part of two days. The hours were coming down, the ship was kicking some butt, and the blue forces were getting beat.

Unfortunately, so were the pilots. They made mistakes. Decisions that are normally simple were difficult. Landings were sloppy, and flight discipline waned. Fog was always a possibility, yet we launched anyway. Having done around-the-clock ops for two days straight and approaching a third, we had made enough little mistakes to cause the image of a falling domino to form in my mind. One more mistake, and the remaining pieces would fall. I decided to call a meeting to sanity-check my vision with the other aircrew members and found I wasn't alone. Each member knew we were pushing the envelope, but none had voiced their concerns.

Everyone felt there was apparent pressure from home guard–and from me–to perform while we were in MARCOT. The message they were getting was clear: we had been on this lollipop cruise for six weeks, got socked in with weather for a seventh, and now, finally, it was time to shut up and fly the hours. This wasn't the time to complain about crew rest or bad weather. To them, this was the eleventh hour. As one of them put it, they thought I wanted them to "suck it up for few days 'cause this is what we came here for."

Well, shame on me for allowing that message to get through, and shame on them for accepting it. It took that meeting to completely snap us out of it. A quick reapplication of ORM theory made it all too easy. The benefit: flight hours and training. The risk: death.

Many of us still remember the Memorex commercials where the consumer had to discern between what was real and what was not. I used that slogan to pull our heads back into reality and learned a valuable lesson in the process: during today's peace-time training, very seldom do the benefits warrant pushing the envelope. If a rubber bullet or imaginary missile is fired in error during a training exercise, they can always rewind the tapes and try again. On the other hand, the flying we do is dangerous. There's no re-winding the tapes. It's real, and it's always live.

Stay aware of the difference. After an exercise, you don't come home to a hero's welcome, but you can still come home in a casket.

LCdr. Kern flies with HSL-48.

Did You Hear "Mayday"?

by LCdr. Ron Novak

In the Viking community, aircrews brief SAR responsibilities in the event we are needed as on-scene commander. We normally think about being involved in a SAR at sea. A SAR over land and within 50 miles of home base was one of those occurrences that I didn't start thinking about until it happened.

One late afternoon, I was added as the mission commander for a bombing flight. We were headed to Townsend Range to drop some Mk-76 blue death. I was teamed up with one of the new-guy pilots for a front-seats-only hop.

After about a 20-minute AIRNAV to the range, we canceled IFR, checked in, and proceeded to drop at will. Halfway down the chute on our third, high-angle, dive pass, we heard a "Mayday" call over guard. At first, I wasn't sure exactly what had been said during the Mayday transmission. The fact that we were in hot added to the confusion.

Pulling off the target, the pilot and I looked at each other and asked in unison, "Was that a Mayday call?" The next transmission on the target frequency was from the target control: "Mauler, did you just hear a Mayday call from a Bourbon flight?" It seemed as though nobody was quite sure who had called or what the problem was.

We switched up 243.0 and got in touch with the Mayday aircraft. It was an A-10 about 20 miles southwest of the target. His wingman had just ejected. Now the wheels started turning in my head, and I realized what our contribution was going to be in this SAR. I was a senior JO NFO in

the squadron, and I had dealt with a couple at-sea SAR efforts. My first thought was that a 15-plane gaggle would be speeding to the downed aircrew, all trying to do the same job. My pilot, with just a few months in the squadron, must have told me three or four times, "We need to get down there!" while I clarified a couple of details with an ATC controller.

On our way to the SAR, we set a bingo fuel. I switched up 282.8 and just listened for the first minute. After we determined the downed pilot and the wingman were in good comms with each other, we checked in with the wingman (the primary SAR) and told him we were an S-3B with about three hours' time on station. He told us to hold five miles south of his location and relay comms as necessary. That reinforced my belief that there was a convention of aircraft around the SAR location. So I asked the wingman, "How many other SAR aircraft on scene?"

"You are it, besides me," he replied.

Townsend Target called on the radio and asked us the status, because they needed to send a crash crew and firefighters to contain the area. Fortunately, we were still within communication range of the target; the A-10 wingman was too low to receive their transmissions. By that time, the downed pilot had managed to find his way out of the woods away from the burning wreckage of what used to be an A-10. He stumbled upon a mobile home, knocked on the door, and asked the resident for a ride to the hospital. Several rescue vehicles were within two miles of the pilot's location, but none could find their way through the thick woods where the wreckage was spread out. At about the same time, the wingman A-10 called us and said he was at bingo and on his way home. "You guys can assume primary SAR—see ya," he said, before switching.

It was our show now, so we drove into the crash site at 200 feet to see for ourselves. The afternoon had been hazy, and just as we started to focus on the smoke plume, we also noticed two towers in the area (the A-10 wingman had warned us about them). Surprise! There were actually three, and all were more than 1,000 feet. As we maneuvered between the sets of towers, we received a faint radio call from the Townsend ground crew, who were on their way down the interstate about 20 miles northeast of the crash site. The ground crew was looking for directions to the crash, and, again, the pilot and I looked at each other and shrugged. Neither of us was familiar with this part of the countryside. When the ground crew vehicles were within four miles, we started pointing out topographic features to give them directions. The problem was that we couldn't see the vehicles. Even at 200 feet, it was extremely hard to make them out. Most of the roads were dirt and lined with trees.

Finally, we managed to make visual contact with the Air Force ground-crew vehicles. We could only figure out one way to send them in the right direction: We had to fly straight down their path on top of them and then find the next accessible dirt road. A couple of transmissions made me feel like a gas-station attendant giving directions. "OK," I'd say, "turn left now and then make a right about 200 yards down." We ended up guiding the entire Air Force crash crew, local firefighting crews, sheriff patrols, and a SAR helo to pick up the survivor (the helo wasn't needed since the pilot had hitched a ride to the hospital). It was essential to get all crash vehicles in quickly, however, because the fire was spreading through the forest. We remained in comms with the Air Force ground crew, relaying that we would remain overhead to assist. When the crash site was contained, the ground crew thanked us for our help, and we returned to base.

I remember my apprehension of a "furball" SAR effort. I assumed that every aircraft known to mankind would be showing up. I applaud my pilot's initiative to get involved immediately (but not blindly)—it is the right attitude when a SAR mission broadsides you in the middle of your regular mission. You may be the only other aircraft in the area, and your reaction time could make the difference to someone in the water or on the ground.

I was surprised with the assistance we had been able to provide. I never expected to be directing a firefighting effort from overhead as an S-3B crew. When I visualized an in-close SAR effort, I expected only helo assets to provide capable support, but they weren't handy, and we were.

LCdr. Novak flies with VS-22.

Single-Engine in the Adri

by Lt. Shannon Smith

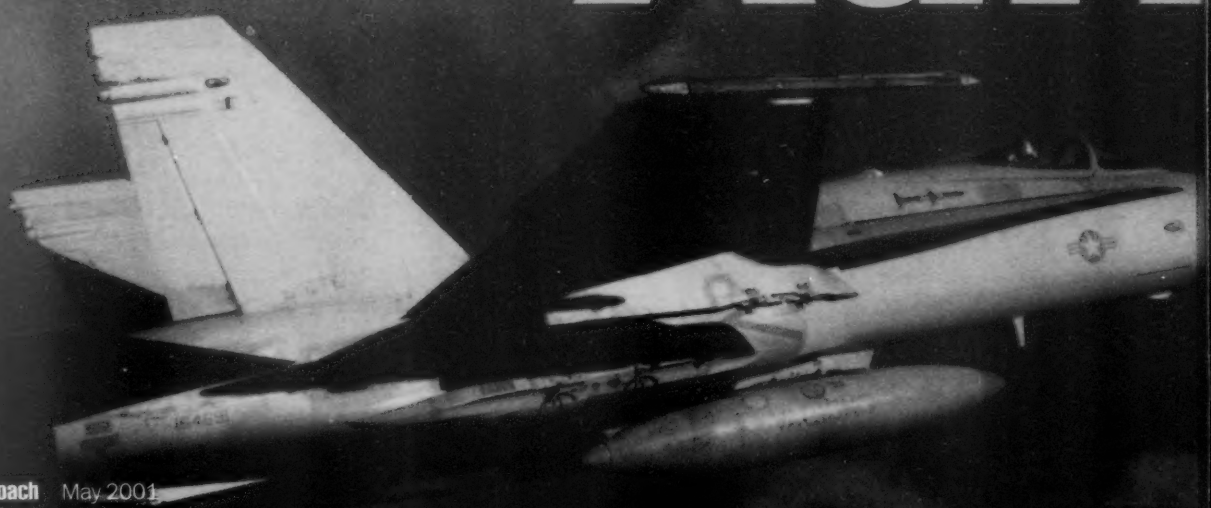
There are lots of times when you have to knock it off: Someone violates a training rule; someone calls, "Knock it off"; an unsafe condition; ballistic or out-of-control flight; NORDO or bingo; aircraft that weren't briefed enter the area; unexpected loss of sight; inadvertent IFR; or overstress. We brief these rules before every air-to-air flight, along with out-of-control procedures. I had an experience with an unsafe condition that isn't directly addressed but is definitely implied.

It was our second month of flight operations in the Adriatic, and we were all feeling comfortable with operating in the area. The flight schedule had me on for another 2 v 2 AIC, not a bad mission, except all of our jets were in the 3-tank configuration commonly referred to as "the pig." It was an all-JO, daytime flight. I was Dash 2, and we were fighting a couple of Tomcats.

The first part of the hop was uneventful. Everyone got off the ground deck, and we were on our caps waiting to [illegible] "Bogey's on." We were blue air for the first run. The [illegible] was bogey, so we made a standard section [illegible] at the merge, my lead made the ID and cleared me [illegible] the first Tomcat at four miles, leaving [illegible] alive when I arrived at the merge. My airspeed at the merge wasn't optimum because of my Hornet's configuration and fuel constraints, but I wasn't about to let this last Tomcat leave the merge alive. I sold the rest of my airspeed, decelerating below 250 knots to get my nose on the last Tomcat. Then I took a Fox-2 for a valid kill. Shortly after, my lead called, "Knock it off."

Feeling good about the first engagement, I continued a left turn to my cap station. I noticed my airspeed decreasing below 200 knots. Even with three tanks, at 22,000 feet, and with both throttles at mil, I shouldn't have decelerated that much. I checked my engine instruments and noticed that my left engine was at 68 percent rpm and fuel flow was at 400 pounds per hour. Realizing something was definitely not right, I came up over shot common and [illegible]d, "Knock it off, knock it off."

I quickly relayed to my lead and the two Tomcats that we [illegible] finished for the day and that I was heading back [illegible] the ship because of engine problems. On the way back, I analyzed the indications and determined the left engine was still on line and the VEN was scheduling properly, but the rpm was stuck at 68 percent and fuel flow on the left engine was at 400 pounds per hour. I told Strike I would need to



recover on a straight-in, single-engine approach, and need to speak with the Hornet rep in CAT CC.

The Hornet rep and I went through all of my indications and concluded I had a fuel-control problem. We agreed I should leave the engine running to maintain the No. 1 hydraulic system. I started [illegible] from 20,000 feet as I got closer to the ship, and [illegible] 10,000 feet, I got a left-engine-flameout caution. My left engine rpm had dropped to 58 percent (fuel flow had changed). I passed this info on to the rep, and we determined that the low engine rpm had caused the caution. Passing [illegible] feet, I got a left-generator caution. Checking my engine instruments, I saw my rpm was at 45 percent, but the engine was still on line.

I started thinking about the procedures for a single-engine approach as I leveled off at 1,200 feet, 10 miles behind the boat. The next caution I received was a left boost low. The rpm was down to 42 percent, and the caution was cycling on and off, tripping the master-caution side tone in my helmet every four seconds. With only one good engine, I was having a tough time maintaining lineup. Each power correction moved the nose left and right, and like most young Hornet pilots, I'm not the most proficient

us[illegible]
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with me rolling[illegible]
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engine rpm [illegible] percent
at 400 pounds

I wasn't about to let this last Tomcat leave the merge alive.

atic

The postflight maintenance inspection revealed that the main fuel control on the left engine had failed at a fuel-flow setting of 400 pounds per hour. This setting explained the decreasing rpm as I descended, which triggered the resulting cautions.

After every sortie, we analyze the "goods and others" to summarize the lessons learned. A "good" was that I didn't overreact to some of the cautions, which could have prompted me to secure my left engine. Taking time to analyze the [illegible] prompted me to not shut down the engine, which kept the No. 1 hydraulic system on line.

An "other" from this flight was that I paid too much attention to the cautions, instead of concentrating on flying my jet and getting it back aboard on the first pass.

When an airborne emergency occurs, it is usually not the last problem [illegible] in a flight. Which leads to the other "[illegible]" Crew coordination, even in a single-seat [illegible] is essential.

Single-Engine in the Adri

There are lots of times when you have to knock it off: Someone violates a training rule; someone calls, "Knock it off"; an unsafe condition; ballistic or out-of-control flight; NORDO or bingo; aircraft that weren't briefed enter the area; unexpected loss of sight; inadvertent IFR; or overstress. We brief these rules before every air-to-air flight, along with out-of-control procedures. I had an experience with an unsafe condition that isn't directly addressed but is definitely implied.

It was our second month of flight operations in the Adriatic, and we were all feeling comfortable with operating in the area. The flight schedule had me on for another 2 v 2 AIC, not a bad mission, except all of our jets were in the 3-tank configuration commonly referred to as "the pig." It was an all-JO, daytime flight. I was Dash 2, and we were fighting a couple of Tomcats.

The first part of the hop was uneventful. Everyone got off the flight deck, and we were on our caps waiting to hear, "Fight's on." We were blue air for the first run. The declaration was bogey, so we made a standard section VID. At the merge, my lead made the ID and cleared me to fire. I killed the first Tomcat at four miles, leaving one alive when I arrived at the merge. My airspeed at the merge wasn't optimum because of my Hornet's configuration and fuel constraints, but I wasn't about to let this last Tomcat leave the merge alive. I sold the rest of my airspeed, decelerating below 250 knots to get my nose on the last Tomcat. Then I took a Fox-2 for a valid kill. Shortly after, my lead called, "Knock it off."

Feeling good about the first engagement, I continued a left turn to my cap station. I noticed my airspeed decreasing below 200 knots. Even with three tanks, at 22,000 feet, and with both throttles at mil, I shouldn't have decelerated that much. I checked my engine instruments and noticed that my left engine was at 68 percent rpm and fuel flow was at 400 pounds per hour. Realizing something was definitely not right, I came up over shot common and called, "Knock it off, knock it off."

I quickly relayed to my lead and the two Tomcats that we were finished for the day and that I was heading back overhead the ship because of engine problems. On the way back, I analyzed the indications and determined the left engine was still on line and the VEN was scheduling properly, but the rpm was stuck at 68 percent and fuel flow on the left engine was at 400 pounds per hour. I told Strike I would need to

recover on a straight-in, single-engine approach, and need to speak with the Hornet rep in CATCC.

The Hornet rep and I went through all of my indications and concluded I had a fuel-control problem. We agreed I should leave the engine running to maintain the No. 1 hydraulic system. I started a descent from 20,000 feet as I got closer to the ship, and as I passed 10,000 feet, I got a left-engine-flameout caution. My left engine rpm had dropped to 58 percent (fuel flow hadn't changed). I passed this info on to the rep, and we determined that the low engine rpm had caused the caution. Passing 5,000 feet, I got a left-generator caution. Checking my engine instruments, I saw my rpm was at 45 percent, but the engine was still on line.

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I was t

atic

Photo composite by Allan Amen

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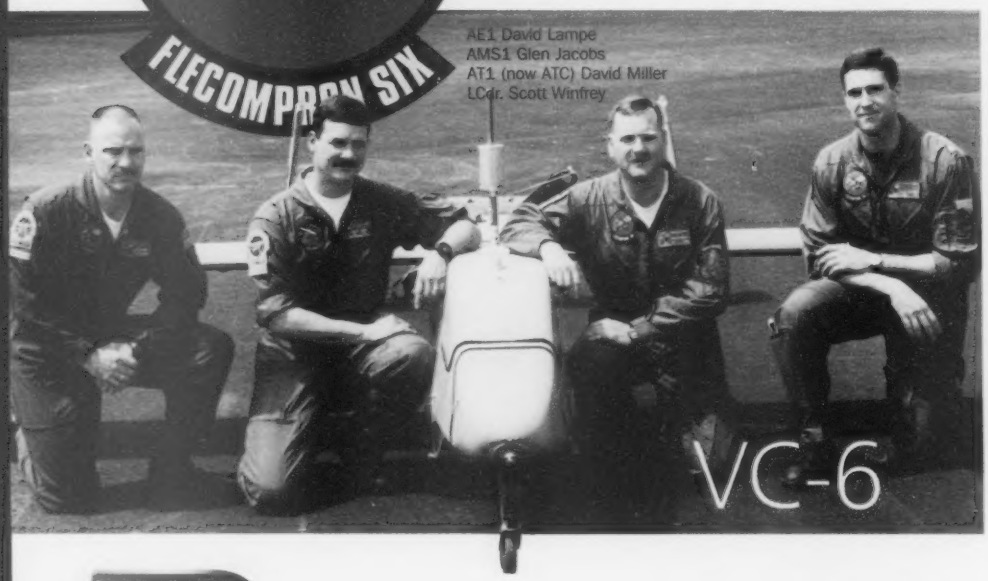
Lt. Smith flies with VFA-136.



BRAVO Zulu

Pilots launched a Pioneer unmanned aerial vehicle (UAV) from Webster Field, NAS Patuxent River Auxiliary, for some touch-and-go training. Thirty-three minutes into the flight, the internal pilot (IP), AE1 David Lampe, detected an unusually high engine-temperature reading of 353 degrees Celsius (93 degrees above NATOPS limits). At the time, the aircraft was flying at 460 feet, on a left downwind for touch-and-go. Seconds later, the generator in the UAV failed, compounding the emergency. AE1 Lampe and his checkride instructor, AMS1 Glen Jacobs, executed the NATOPS procedures, shutting down the payload camera and all other non-essential electrical systems. During the few seconds it took to complete the boldface procedures, the engine seized.

AT1 (now ATC) David Miller, the EP in control of the UAV, immediately abbreviated his pattern, trading altitude for airspeed to keep the UAV in an optimum glide. Coordinating the emergency-landing responsibilities, the mission commander (LCdr. Scott Winfrey) obtained landing clearance, while AE1 Lampe relayed altitude and airspeed calls to AT1 Miller, who negotiated shifting wind conditions and touched the aircraft down 50 feet from his position on the runway. A high headwind caused the UAV to bounce back into the air, but AT1 Miller calmly set the aircraft down for a successful dead-stick landing. A hard-landing inspection was conducted, and no damage was found. Having had 10 seized engines in flights over water in the past 18 months, this marked the first time a UAV was recovered over land by a VC-6 aircrew.

During the third engagement of a routine air-combat sortie, Capt. Conner's FA-18 suddenly began a rapid, uncommanded right roll while performing a 7-G vertical maneuver. Capt. Conner immediately called, "Knock it off" and began regaining control of the aircraft and investigating the problem. With no indications from the flight-control page on the Digital-Display Indicator (DDI) or aural cautions, he visually inspected the flight controls. He noticed that his right trailing-edge flap had failed at the outer hinge point. The leading-edge surfaces of both vertical stabilizers had been damaged.

VMFA-323

Capt. Chad Conner

Continuing to work through the problem, Capt. Conner declared an emergency with Beaver Control. En route to NAS North Island, he instructed his wingman to slowly join for a visual inspection. The inspection revealed that a third of the flap was remaining and wedged vertically against the fuselage, with the flap shroud pushed up into the airstream. Shrapnel had also severely damaged the turtleback and vertical stabilizers.

Capt. Conner then began making the slow-flight NATOPS controllability check in the landing configuration. After further consultation with squadron base, Capt. Conner determined auto-flap would be the best configuration for landing. Unfortunately, the aircraft would be on-speed at 225 knots with flaps auto and a fuel weight of 6,000 pounds. Adjusting gross weight allowed an on-speed condition of 215 knots.

Capt. Conner made an arrested landing on runway 36. When the aircraft entered ground effect, more stick-and-rudder inputs were required to maintain wings-level. The decreased controllability was due to the added vertical-control surface created by the remaining portion of the flap wedged against the side of the fuselage. The protruding flap shroud was acting like a spoiler on top of the wing, and approximately 10 percent less wing-surface area was available. Finally, he engaged the short-field arresting gear on runway 36, slightly off centerline, at 190 knots.

Investigators are trying to determine why the trailing-edge flap failed and departed the aircraft.

HMM-166

Capt. Gregory Earnest
Cpl. Matthew Camacho
Capt. Gary Harrison

On Sept. 26, 2000, Antler 06 (a CH-46E from HMM-166) was flying the first leg of a cross-country flight to Cherry Point, N.C. The aircrew departed MCAS Miramar and cancelled their IFR handling after reaching VFR conditions. Capt. Harrison initiated a descent from 9,000 feet approximately 30 miles east of Miramar when Cpl. Camacho noticed a leak in the utility hydraulic system.

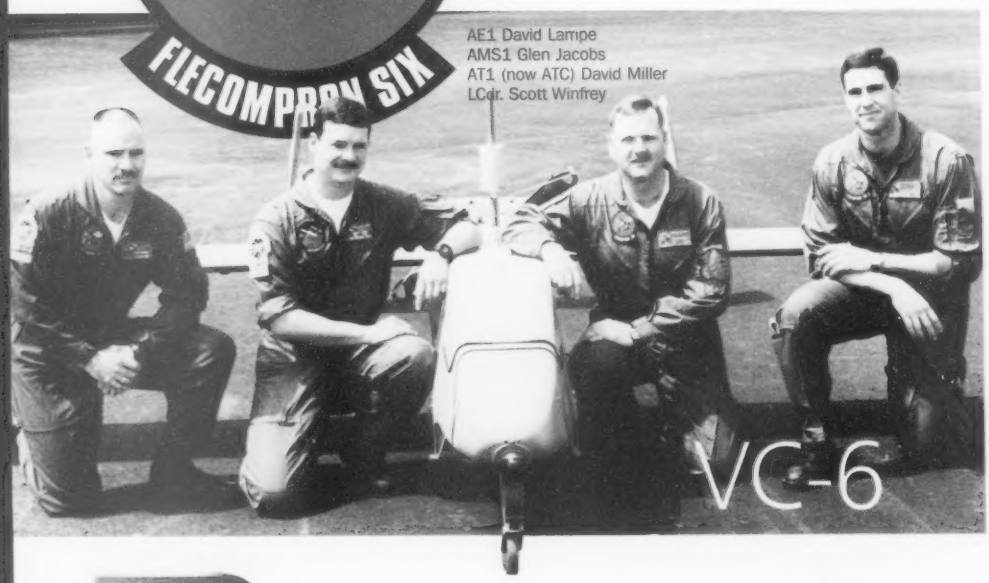
Determining the leak would keep them from completing the first leg of the flight, the aircrew decided to return to Miramar. Fifteen miles from homefield, the utility hydraulic line blew entirely, spraying the aft portion of the cabin with flammable fluid. Capt. Earnest executed NATOPS procedures, isolating the *fwd util hyd* switch and securing the EAPS.

Capt. Harrison declared an emergency with SoCal approach to gain immediate entry into San Diego's Class B airspace. Capt. Earnest quickly provided headings and switched to the control-tower frequency of the nearest divert field. After the aircraft had turned around, the *utility hot light* illuminated on the master-caution panel. The blown line continued to spray fluid throughout the cabin. The utility pump had become increasingly hot and could have cavitated as it continued to turn without fluid. These circumstances forced the aircrew to land immediately.

Capt. Earnest notified tower of the precautionary emergency landing and aircraft position, while Capt. Harrison executed a controlled approach into an abandoned baseball field. On deck, the aircrew shut down without incident. The aircrew's quick decision-making and high level of situational awareness prevented a possible catastrophic aircraft fire and loss of life.

BZs require an endorsement from the nominating squadron's CO and the appropriate CAG, wing commander or MAG commander. In the case of helo dets, the CO of the ship will suffice. A squadron zapper and a 5-by-7 inch photo of the entire crew should accompany the BZ nomination.

We can use digital photos, but we will need a large file: at least 5 by 7 inches at 300 dpi. If you save them in JPG format, this will reduce the file size and make it easier to e-mail. If your digital camera won't support this requirement, you'll need to shoot regular film. Don't try to include the people and the whole aircraft. Shoot a close-up of the subjects, and send a separate image of your squadron aircraft if you like. Please include a squadron telephone number so we can call with questions.



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AMS1 Glen Jacobs
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BRAVO Zulu

VT-35

LtCol. Max Morton

While instructing an advanced maritime student in the TC-12B, LtCol. Max Morton saw indications that the landing gear indicated in-transit (the light in the gear handle was in the up position) after a touch-and-go landing. The fact that the aircraft wasn't climbing normally also suggested that the gear was at least partly extended. Concerned about marginal single-engine performance with the landing gear stuck down, LtCol. Morton immediately coordinated with Houston Center to climb to FL210 and return to NAS Corpus Christi, Texas.

En route, he reviewed NATOPS emergency procedures and troubleshot the system. Upon arrival, he entered the overhead delta pattern and began manually extending the gear. However, the manual extension handle was frozen and would not budge. His systems knowledge and airmanship would be tested to the limit, because neither the normal nor emergency systems were working.

Immediately, a team of senior instructor pilots and Raytheon maintenance personnel assembled on the hangar deck. At the same time, another squadron instructor pilot, Lt. Jake Stratton, diverted to rejoin LtCol. Morton in the delta pattern. When he arrived, Lt. Stratton confirmed that all three landing gear were extended about halfway. The team on the hangar deck worked through the landing-gear system of an aircraft that was in for maintenance. They brainstormed possible causes and proposed remedies, while LtCol. Morton and his student were busy removing floor panels inside the aircraft to access the landing-gear-system components. Lt. Stratton maintained formation in the delta pattern to relay the results of attempted corrective actions and monitor aircraft performance.

After describing the condition of the nose-landing-gear chain sprocket and landing-gear motor to the team on the hangar deck, LtCol. Morton tried to manually reset the 60-amp circuit breaker on the gear motor. The circuit breaker popped after a couple of seconds. Lt. Stratton confirmed that the landing gear had moved but still was well short of the down-and-locked position. LtCol. Morton alternated between trying to extend the gear manually and resetting the circuit breaker. Finally, he got three-down-and-locked indications. Three and one-half hours after entering the delta pattern, approaching emergency fuel, with the south Texas sun beginning to set and with most of the base on the flight line watching, LtCol. Morton made a perfect landing.

Mishap-Free Milestone

HS-2
15 years (47,000 hours)

HS-6
12 years mishap-free ops

HSL-51
40,000 hours (nine years)

VAQ-129
eight years (59,870 hours)

VAQ-134
30 years (43,920 hours)

VAQ-135
five years mishap-free ops

VAQ-136
22,500 hours (13 years)

VAQ-138
32,800 hours (19 years)

VAW-121
65,000 hours (34 years)

VF-213
five years mishap-free ops

VFA-22
18,000 hours (five years)

VFA-94
nine years mishap-free ops

VFA-97
20,000 hours

VFA-115
22,000 hours (six years)

VFA-192
71,000 hours (17 years)

VMFA(AW)-332
85,000 hours

VMGR-234
100,000 hours (25 years)

VP-40
220,000 hours

VP-46
260,000 hours (37 years)

DECISIONS, DECISIONS

by LCdr. Paul Jennings

It wasn't a big deal, but when it was over, I was amazed at how many decisions my crew and I faced while handling a malfunction on an Operations Southern Watch (OSW) flight. This article gives you a chance to decide if we were idiots or heroes.

The squadron was two weeks into our 90-day deployment, flying out of lovely Prince Sultan Airbase (PSAB), Kingdom of Saudi Arabia, with the Air Force's 363d Air Expeditionary Wing. The turnover had gone well with the outgoing Prowler squadron, and we were quickly settling into the OSW routine. My crew and I were on our fourth flight into "the box," Iraq's southern no-fly zone. With about 15 minutes left to cover in the vul window and in the vicinity of Tallil Airfield, I noticed the left combined hydraulic pump almost at zero psi.

Decision number one was easy: Turn south now. As we proceeded to the Saudi-Iraqi border, we contacted the AWACS, told them about our problem, and asked for the weather at the primary divert field, Al Jaber in Kuwait. AWACS reported the weather at Al Jaber as two miles in blowing dust. During our two short weeks in the desert, we'd all gained a healthy respect for how quickly a 120-degree, bright and sunny day could go to one-quarter mile visibility on the deck due to blowing dust, a sort of chocolate-milk-bowl effect.

Decision number two was more complex: Where do we land? Al Jaber was only about 60 miles away, and we had 6,000 pounds of gas. Easy to make that, but what about the weather? PSAB was calling sky clear with visibility unlimited, but it was 45 minutes away, and a fight with the KC-135 stood between us and PSAB. We were at the border, entering the tanker tracks, and had completed the checklist steps for loss of a single hydraulic pump. We'd found no real guidance other than "land as soon as practicable."

Just as we finished the checklist, the stability augmentation system failed. The jet lurched to the left. I trimmed the rudder to center the ball, tried re-engaging the stab aug and got the same results as it immediately clicked off. Plugging the KC-135 without stab aug didn't appeal to me, so Al Jaber was looking more and more likely. As Ops O and ASO, I'd always told aircrew to leave external issues out of the cockpit when flying, but I couldn't help thinking of the logistical nightmare of having a jet (or two, since our wingman was dutifully following along) stuck in Kuwait, missing future OSW sorties as a result.

I waited for the other combined pump to fail, as is the norm for the Prowler, which would make the divert decision easy, but no such luck. I spotted our tanker about 7 miles away and was faced with a third decision: Should I try tanking without stab aug? I decided to try, and if the tanking went OK, decision number two would be easier, and we'd head to PSAB.

As I lined up behind the basket, I considered letting my wingman tank first, so if I ended up wearing the basket, at least he'd have his gas and could get to PSAB. One look at my fuel quantity (5,000 pounds) made me decide not to back off. If that other pump failed, I'd be looking at a fairly

Continued on page 25

If You Have To Guess, It's Time To Quit

by Lt. Eugene Woodruff

With the first port visit of cruise over, everyone was ready to get back underway for one reason or another. We had the early afternoon brief, a "pinky" AIC 3 v 2, followed by a night trap on a 1+30 cycle.

Taxiing out, we went straight to cat 1, unusual for cyclic ops, so we all figured that cat 2 must be down. I ran it up, looked right—no, left—for cat 1, saluted and we were airborne. A smooth launch for having just pulled out of port. The rest of the flight went the same. Two runs, then to the tanker and on to marshal. The approach went smoothly, and the pass looked good too. I was thinking an OK 4-wire.

Taxiing was difficult, because the roll-out on the 4-wire is so close to the end of the angle. To make it worse, aircraft were parked all along cat 2, well aft of the JBD. The activity on cat 1 slowed things down, so we had to wait for a minute by elevator 1 for our spot to open. Eventually, we taxied forward again, but not to the normal locale. We were taxied right next to the nav pole, nose up to the catwalk.

"Valet parking," I thought, as the blueshirts and plane captains began to run under the airplane. But they immediately ran back out, and the yellowshirt began making signals that I didn't understand. I figured they were going to move one of the Hornets and then spin us into its spot. I was wrong. The flight-deck coordinator came over and signaled for us to shut down the right.

My mind raced. What was going on? Hot pump? Troubleshooting? I secured the right and was immediately told to secure the left. I was getting confused. I signaled for chocks and chains, but instead, I got the tow-bar-connected signal. That was extremely unorthodox. "I guess they know what they are doing," I said. ECMO 1 shut off his gear, and I got mine.

The backseater piped up, "Don't forget to get the seats," and we took care of that, too, before we lost ICS. Everyone was set, so I shut down the left and unstrapped.

I asked for the canopies to open, a must for Prowlers as this is a huge safety concern. The plane captain cleared the other side, and we got approval. As the canopies started coming up, the yellowshirt hustled over. "Close the canopies," he signaled, so the plane captain cleared the opposite side and we complied.

"I guess we must be about to get some tailpipes on us," the rightseater yelled. Next the yellowshirt gave me the off-brakes signal, typical for a push-back scenario.

I said, "I don't like this, but I guess we are just getting pushed back into the street."

Wrong again! We headed across the deck and into the landing area. I started to hand-pump the brakes, ensuring a full emergency-brake accumulator. "I really don't like this," I told the rightseater. We were being pushed through the wires backward, straight for the round down. All four of us would be trapped if something went sour. Sure enough, we were pushed all the way aft and cocked against the scupper, right in front of the round down. Finally chocked and chained, we opened the canopies and got out.

There were at least three problems with this whole situation. First, I couldn't have ejected if

something had gone wrong. We had all safed our seats and were unstrapped. Even if I had been able to eject, I couldn't have communicated with our backseaters, and I wouldn't have wanted to risk ejecting them while they were climbing out. Even if we could have ejected, we weren't even close to the required headwind as we traveled down the deck, with about zero relative wind.

Second, because the canopies were closed and open slowly, it would have taken at least four seconds for us to start climbing out once we realized we were going over the side. Jettisoning the canopies was out of the question as, again, this could injure or kill the backseaters if they were unprepared.

Finally, I had several chances to stop this charade before anyone's life was unnecessarily risked. When we started guessing what was going on with our airplane, it was time to halt whatever was going on and get it straight. Section 5 of Chapter 6 in CV NATOPS clearly states, "All personnel except those necessary for the move are [to remain] well clear of the aircraft." The Prowler has only one set of brake pedals, which means one qualified brake rider; the three ECMOs can't help. The canopies are supposed to be open if there is no danger of high winds or risk of jet exhaust blowing on the canopy. The rider is supposed to be unstrapped, with helmet off and earplugs removed. We clearly had the motivation and the backing to stop the move, but we allowed confusion to guide our actions and did nothing.

Lt. Woodruff flies with VAQ-135.

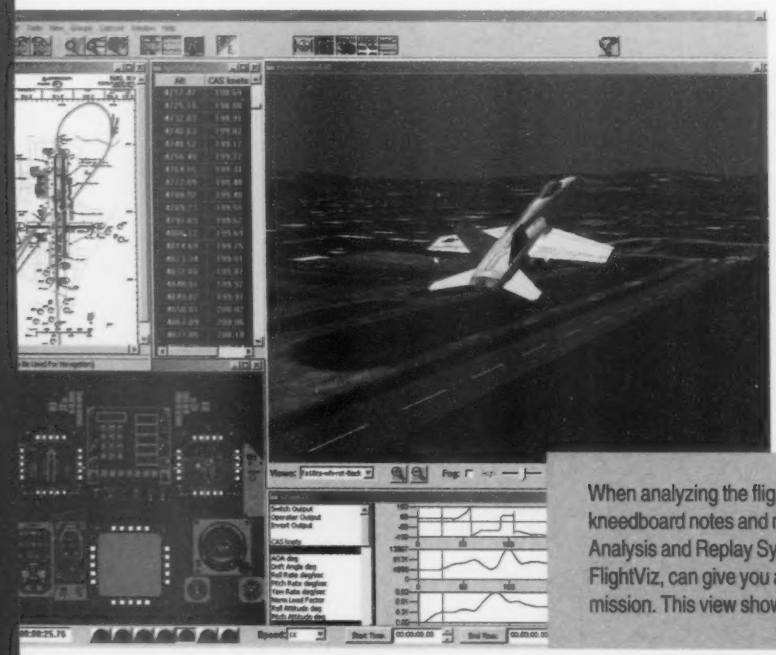
A **TACTS** Range at Your
and Other High-Tech Marvels or

by Derek Nelson

During your first Tactical Aircrew Combat Training System (TACTS) debrief, did you notice any differences between the actual event and what you remembered? Debriefs are much more constructive when you can watch a replay of the flight, constructed from data collected at highly instrumented training ranges. Until recently, this TACTS-type technology has been limited to instrumented training ranges at only a handful of locations around the country. However, with recent advances in computer technology, high-fidelity replays of missions have come of age and may soon be available to anyone with access to a PC.

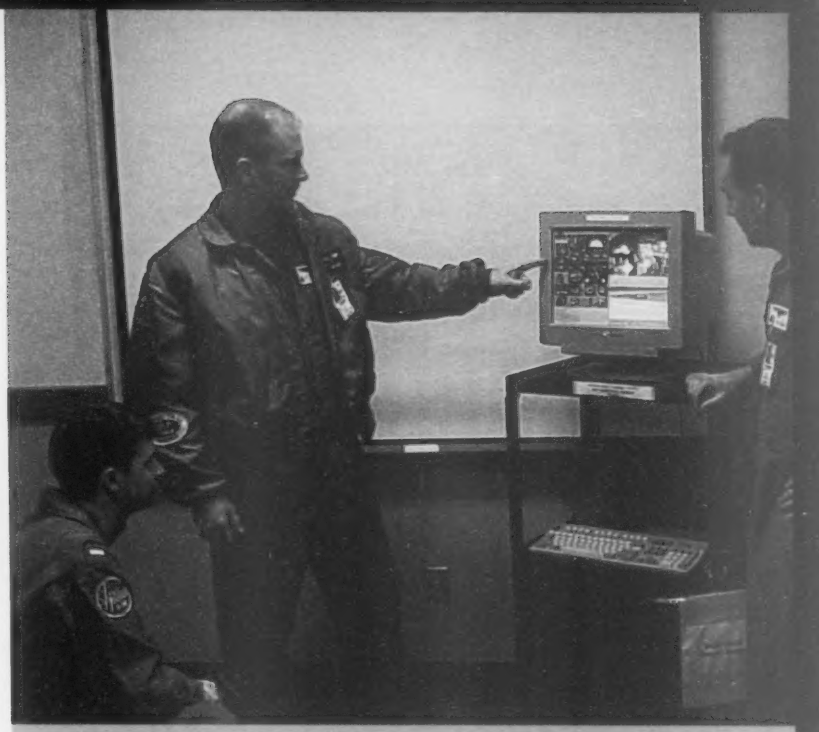
Several projects are underway, including the Computer-Aided Performance Assessment System, or CAPAS for short, one of a number of computer-aided debriefing tools for flight training now commercially available. CAPAS digitally captures flight, voice and video data from simulator missions and replays it during the debrief *[See inset photo on page 18]*. On a desktop computer in the debrief room, you can display flight instruments, gauges, flight paths, and tactical plots. You can also see a 3-D graphic of the simulated aircraft, viewed from any external angle (from a wingman's view, the LSO platform or tower, or from the pilot's view inside the cockpit). You also have both video and audio of the aircrew.

CAPAS lets instructors digitally "mark" specific maneuvers or actions of the crew for rapid recall



When analyzing the flight you just finished, would you rather have your HUD tape, kneedboard notes and memory, or this interactive display? DCS Corporation's Mission Analysis and Replay System (MARS), using a military version of the software product FlightViz, can give you a PC-based tool for analyzing and assessing your most recent mission. This view shows a Navy F-18E taking off.

Fingertips the Horizon



Flight instructor Lt. Mike Kozub (middle) uses the Computer-Aided Performance Assessment System (CAPAS, for short), during a debrief with Ltjg. Mike Gawlas (left) and Ltjg. Scott Berg. CAPAS captures flight, voice and video data from simulator missions so you can replay it during the debrief.

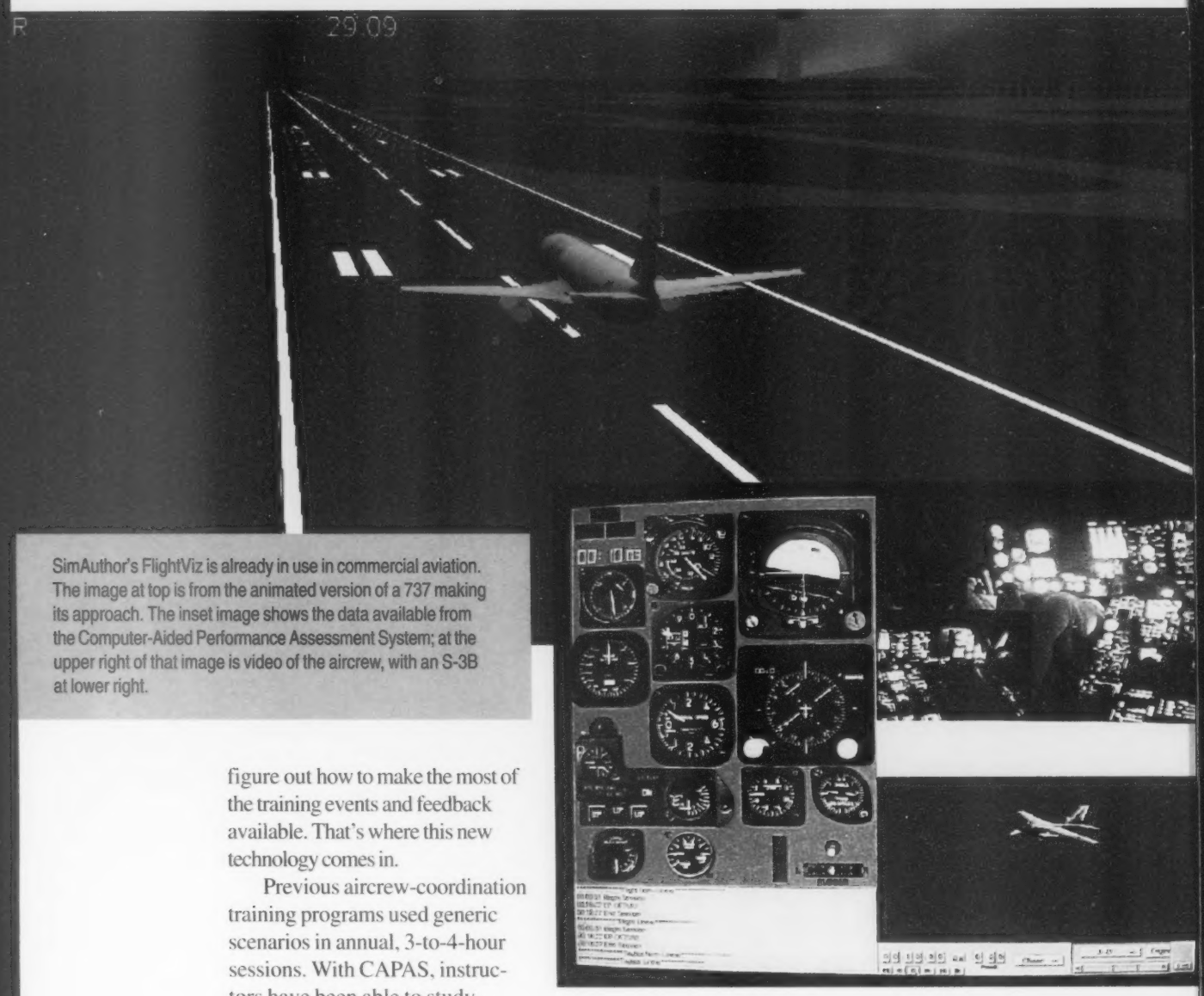
and replay during the debrief *[See photo at right]*. This ability dispenses with cumbersome rewinding and searching associated with analog tapes, and it improves the fidelity and focus of debriefs.

The CAPAS field testing was initially funded by the SECNAV's Office of Safety and Survivability. The system was integrated into the FRS training program, using Spirent Computer Aided Debriefing System animation and marking-device software. CAPAS is part of a larger effort by the Naval Air Board's Human Factors Quality Management Board, which was chartered to reduce the rate of mishaps caused by human error. The board's Training Improvements Working Group also recognized CAPAS as a potent tool for Crew Resource Management (CRM) efforts to improve aircrew situational awareness, decision-making under pressure, and other factors that contribute to human error.

Material problems are increasingly under control, so human error has emerged as the target of opportunity in mishap prevention. From FY95 through FY99, human error was a factor in 131 of 155 Navy and Marine Corps Class A's, more than double any other single factor. Skill-based errors (defined as errors in basic aviation skills, such as stick-and-rudder control, scan in and out of the cockpit, or following checklists) figured into 52 of these mishaps. In FY00, human error was a factor in 17 of 29 Class A's; skill-based errors were a factor in 14. These two categories are the "low-hanging fruit" in the focus of our current efforts to reduce mishaps.

This category of errors has long been acknowledged as a causal factor in our mishaps. In the early '90s, skill-based errors were a factor in about 40 percent of all TACAIR and helo Class A's. That percentage has now climbed to above 60 percent. This dramatic statistic is prominent in the current "tapestry" brief by RAdm. Skip Dirren, Commander, Naval Safety Center. The brief correlates data from MIRs, Naval Safety Center surveys at more than 40 commands, Cultural Workshops at more than 60 aviation units, SSWG meetings, ASC briefings at Monterey, the IG report on naval aviation spares and readiness, and debriefs after ORM immersion training.

The conclusion: The adage "to err is human" is still accurate. Inadequate training, insufficient manning, and lack of equipment can also contribute to mishaps. The fact that skill-based errors are on the rise is cause for concern. Given that flight hours may not increase any time soon, we have to



SimAuthor's FlightViz is already in use in commercial aviation. The image at top is from the animated version of a 737 making its approach. The inset image shows the data available from the Computer-Aided Performance Assessment System; at the upper right of that image is video of the aircrew, with an S-3B at lower right.

figure out how to make the most of the training events and feedback available. That's where this new technology comes in.

Previous aircrew-coordination training programs used generic scenarios in annual, 3-to-4-hour sessions. With CAPAS, instructors have been able to study trends, evaluate shortcomings of curricula, and replay and analyze events that have noteworthy training value. Another unforeseen benefit has been that students' self-assessment and crew-assessment skills have also improved.

The next logical step in this technology is to apply CAPAS-type systems to daily operations. The airline industry has extracted flight data as part of a program known as Flight Operations Quality Assurance (FOQA) since the early 1990s. The focus of this program was to monitor instances when pilots exceeded threshold limits, and then to use the information to provide feedback into training curricula and modify procedures to improve safety. Similarly, CAPAS can help analyze performance and behavior, with a view toward modifying and improving training.

A few other initiatives use similar technology. One project (sponsored by NAVAIR PMA-209) uses the Crash Survivable Flight Incident Recorder (CSFIR) to record flight data. This data is then fed into a PC-based animator, which essentially replays the flight similar to CAPAS. Although this system was designed to recon-

struct mishaps, the information recorded can be extracted on a routine basis.

Another system that can reconstruct a flight, using flight-animation software similar to the aforementioned systems, is MARS, or Mission Analysis and Review System. MARS is a proprietary system that combines flight-data-visualization software called FlightViz (made by SimAuthor) and DCS Corporation's advanced software for collecting aircraft data to display and replay the mission. MARS can combine the data from flights of one or more aircraft and replay it for aircrew debrief.

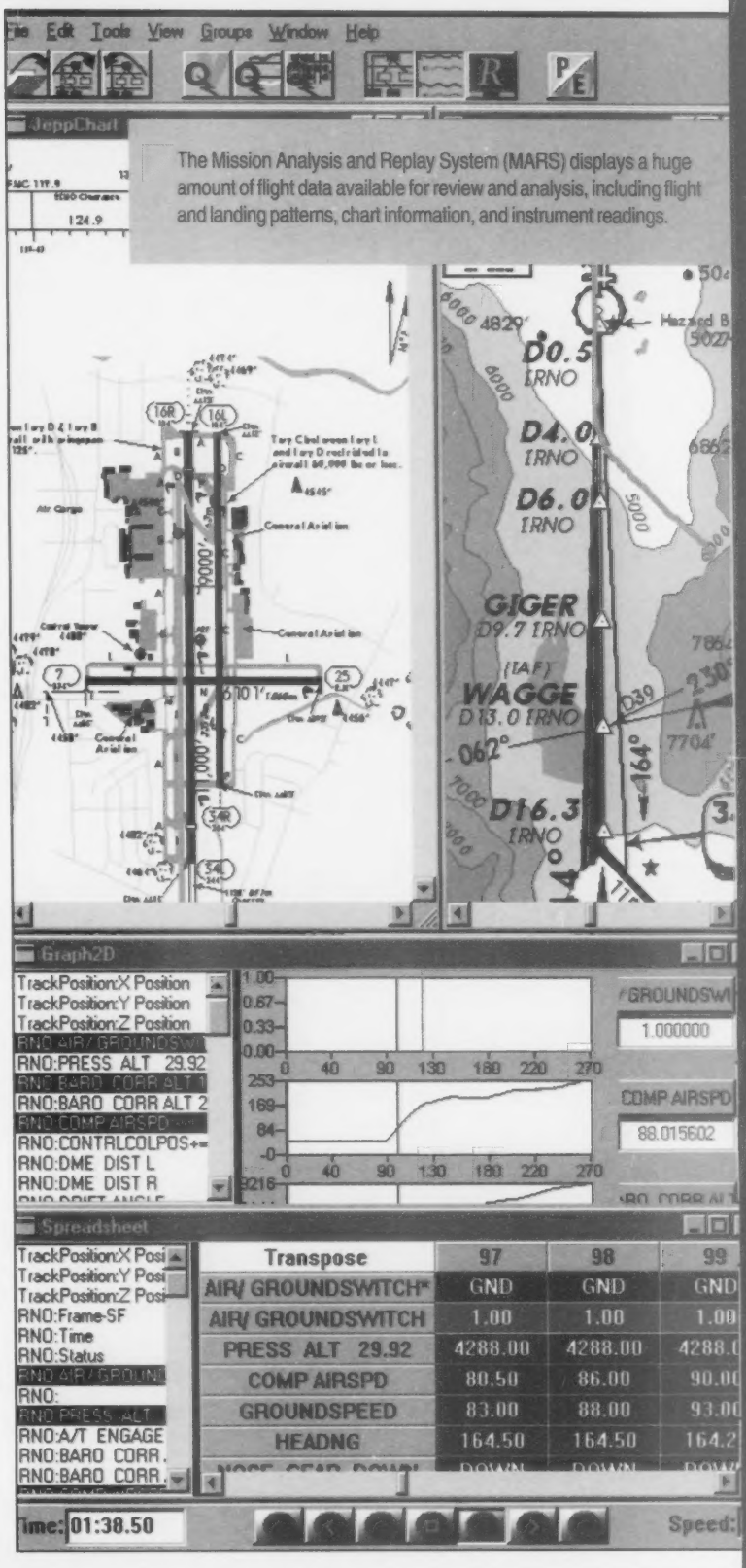
The data collected also has many other applications. In can help you answer all those post-flight questions from the people in intel, ops, safety, and maintenance, and you won't have to rely on the good old kneeboard, your highly subjective memory, or data from the HUD tape.

MARS collects flight data using equipment already onboard most Navy and Marine Corps aircraft. It allows that data to be input to a desktop computer and formats it so the aircrew can play it back, displaying a 3-D scene of the aircraft and its computed path, along with airports and runways, terrain, cockpit instruments, navigational charts, and navaids *[See photo at right]*. They can zoom, pan, and search for events. They can also analyze their performance against planned mission profiles or maneuvers and generate detailed reports. It provides a much better way to study safety-of-flight incidents. It can also give instructors quantitative feedback on mission performance, which can improve training.

CAPAS, MARS and similar tools are designed to allow aircrews to fly smarter and safer, despite increasing workloads in the cockpit and decreasing numbers of flight hours.

What's the status of these promising tools? VS-41 and HSL-41 were the Navy's beta-test sites for CAPAS. Since then, other CAPAS-type systems have been installed at HSL-40 and VAQ-129. The next install site is planned for VT-31. MARS has been pitched to NAVAIR, and the designers are looking for inputs from Topgun and NSAWC to further militarize it. FlightViz, as a stand-alone simulator debrief tool, will soon be installed on the new CH-60 simulator.

The big bogey, as always, is funding.



The Mission Analysis and Replay System (MARS) displays a huge amount of flight data available for review and analysis, including flight and landing patterns, chart information, and instrument readings.

Situational Awareness
Assertiveness
Decision Making
Leadership
Communication
Adaptability/Flexibility
Mission Analysis

Falling

INTRODUCTION:

Nearly 85 percent of all mishaps are caused wholly or in part by human factors; 65 percent involve aircrew error. The Navy began whittling away at these problems by establishing the Aircrew Coordination Training (now called Crew Resource Management) Program in 1987, directing that all aircrew receive annual ACT training and flight evaluations. However, this annual, bare-minimum amount isn't enough.

To help, we'll use this new quarterly feature to make people aware of CRM issues, assist commands and aircraft managers in running their local programs, and generate ready-room discussions. Articles will highlight particular skills, provide current Safety Center data, describe new resources, and list POCs.

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Crew Resource Management

Toward Stall

by LCdr. Mike Rogers

The following narrative is based on a hazrep. I've put it in the usual *Approach* style and I've masked the identity of the community and aircraft type, because similar events have occurred in every community flying surface surveillance, SAR or ASW.

It was a fine summer morning, with VMC conditions: 5 miles visibility in haze and a 2,000-foot scattered layer. The aircraft was working beautifully. This was what it was all about: miles of blue, open ocean with nothing to see but an occasional merchant ship.

We had been tasked to work an area 50 miles away. We were halfway through our flight with nothing remarkable to report. Then, just when we were starting to get bored, we saw smoke on the horizon. We accelerated to reach the position and started looking. We also descended, just like we had on numerous other flights during work-ups and deployment, planning to level off at 500 feet. By now, after three months on the road, our aircrew was a finely tuned, well-oiled machine. Everyone knew their jobs…or so we thought.

The pilot at the controls was an experienced second-tour and was on his second cruise with this squadron. The other seat was occupied by a new guy (it could have been a pilot, RIO or COTAC) who had joined the squadron during work-ups. We marked the point as we leveled off at 500 feet. With nothing visible on the first pass, the pilot smoothly rolled into a 40-degree-angle-of-bank turn to return to the smoke. He was looking at the tactical display as we turned, while the other crew member was looking down, noting the call sign of another aircraft that was also working in the area. A few seconds later, the crew noted the vertical-speed indicator approaching 1,000 feet per minute as the aircraft descended through 200 feet. Airspeed rapidly fell toward stall speed. Following a loud and assertive call of "Altitude! Climb! Climb! Climb!," the pilot rolled wings level, added maximum power and pulled the nose to a climb attitude.

We took deep breaths and looked at each other. What had happened? We were an experienced crew, three months into deployment, on a routine mission in day VMC. And yet, we had almost become statistics: another aircraft and crew lost at sea with no apparent cause. The aircraft hadn't malfunctioned. The maintainers hadn't made any errors. It was our own fault that we had nearly died. We had made errors in basic airmanship and crew coordination. Our SA had been degraded by boredom and routine. We thought we knew what the other guy was doing and failed to backup each other during a critical phase of flight. When was the last time we briefed SOP for low-level ops? Did either of us call approaching descent altitudes? Did the pilot reset power at level off?

My spouse had almost struck it rich because we got careless and failed to practice the aviation skills we'd been taught. We reported the incident via a hazrep. Yeah, we took some hits in the wardroom, but we survived, and others can learn from our experience.

Monkey Skills Pay Off

by Lt. Gabe Soltero

It's the stuff we joke about in the wardroom while we wait for the AOM to start: "Hey, Pokey, you ready to try those boost-off autos on goggles tonight? When we're done, the moon will have set, so we can take off the NVGs and fly without the AFCS for awhile." Then we laugh hilariously at the prospect of such insane flying regimes, secretly hoping we never will have to deal with such a situation. Well, I had to, and sooner than expected.

The mission was night ASW, our specialty. We were chasing an underwater target and having a good time, using sonobuoys before moving in for the kill with the dipping sonar. We weren't wearing night vision goggles, and our aircraft wasn't configured for such flight. I'd made the mistake of taking off without the NVG kit, a homemade concoction of ordnance tape and glass that covers bright lights in the cockpit. On top of that, my helmet had malfunctioned during the hot-pump crew swap late that afternoon. I hadn't had enough time to fix it on the spot, so I had opted for a spare that wasn't wired for NVGs. I knew we had a hot pump scheduled in two hours, so I figured I'd get the kit and my helmet at that point. Until then, though, we'd be using the "old school" approach, as those dinosaurs who used to fly the H-3 like to say.

The sun set about 30 minutes into our flight, and we dropped the target in the water. We set up a buoy pattern and decided to work it for awhile, trying to get a good fix before dipping the sonar. This lasted about 45 minutes, at which point we started dipping. My sonar operator gained contact on our third dip and held a good track. Since the target was moving away, I directed my copilot to jump ahead and dip at a point where we would have a better shot.

Once the sonar dome was clear of the water, we departed the 60-foot hover, using the auto-

matic-departure function, a standard procedure for night ops. At about 100 feet and 40 knots, however, the aircraft suddenly became harder to control, and my copilot struggled to continue with the climb. One look at the caution panel told the story. We had a hydraulic leak in the aircraft. The leak-detection and isolation system had turned off the boost servos and the AFCS to prevent further loss of fluid.

I fumbled for my pocket checklist in the dark, hawking the altimeter and airspeed indicator to ensure we still were climbing and moving forward. After completing the procedures, I took the controls from my copilot. We had climbed to 2,000 feet in the process, higher than I had wanted, but a sure way to contact the carrier's approach controllers 30 miles away. I struggled to descend as we got closer. The partial loss of hydraulics kept the collective in the mid-position, so I had to fight it all the way. At the same time, we had no AFCS, so the helicopter was squirrelly. It felt exactly the way it feels in the simulator: a hard-to-control aircraft and no visible horizon. So I stuck to the basics: altitude, airspeed, attitude, and torque, grateful for those daytime flights in which we secured the AFCS for airwork drills.

I finally came down to 500 feet. I was high on the ball, but I got the aircraft over the wires and set it down. I knew that if the leak continued, I could have lost hydraulics entirely, and we would have gone swimming.

The pucker factor during this adventure would have been lessened if we had been wearing goggles, because they would have provided a visible horizon. In SH-60Fs that aren't compatible with NVGs, the onus is on pilots to ensure the kit is installed before flying at night. I allowed my helmet problems to take up too much of my attention and missed something that should have been obvious. Perhaps most importantly, I learned there's a good reason we put on the hoods and practice AFCS-off flight in the daytime whenever possible: It reinforces basic "monkey skills" that an easy-to-fly aircraft can tempt us to forget.

Lt. Soltero flies with HS-15.

MIDAIR *Continued from page 3*

I slammed into the desert floor but quickly hopped up and determined I wasn't seriously injured (Adrenaline is a wonderful thing—I could barely move the next day). After several minutes, I got the strobe light going. Dash 2 said it seemed like an eternity before he saw the strobe but that it was easily visible from 15,000 feet. I soon saw and heard him flying overhead. I secured the strobe because the combination of it and the snow was disorienting. I fired off a number of pencil flares for good measure.

A T-34 showed up several minutes later, and I fired off more pencil flares. I started to calm down, and with the decrease of adrenaline, I realized how cold I was. I inflated my raft and tried to sit on it to stay out of the snow. I lit a fire and sat by it until the helicopter arrived. Our CAG flight surgeon was a welcome sight.

I didn't do a great job surviving the mishap. I did a number of things wrong and a few things right. I had pulled the handle quickly; the first rule of being a survivor is "Know when to go." Here are the things that I could have done better.

First of all, dress correctly, and know your gear. I left a jet at 18,000 feet and 380 knots in January over Dixie Valley, wearing a flight suit, gloves, T-shirt, briefs, cotton socks and summer boots. Besides leaving my liner in the PR shop, I also left a watch cap and some chemical hand-warmers there as well. Why? I had been both lazy and rushed. Our squadron had just returned from deployment in early October. In the Gulf, I had taken out the watch cap and the hand-warmers, and I hadn't bothered to put them back into my survival vest. I simply had forgotten the liner. I had worn it on my previous night hop and on at least one day hop, but this time we'd had a long and involved brief, and I had walked late. Plain socks and summer boots—chalk them up to laziness and the supply system.

The result was that I spent an hour and 45 minutes on the ground, waiting for the helicopter, in 2 to 3 inches of snow, with the temperature in the teens, in the same outfit I wear flying in the summer.

I arrived on the ground without a scratch and was able to start a fire. I had matches in my vest but couldn't use them because my fingers were too numb. Instead, I got a fire going, using a night flare and sagebrush. If I hadn't been able to start that fire because I'd been injured, or if the helicopter rescue had been delayed, I could have suffered a bad case of hypothermia or frozen to death.

Dash 2 and the T-34 spotter found me because of my flares and strobe. They were trying to talk to me. Had the weather been worse, my poor preflight of my gear could have put my survival at risk. Later that night, a storm blew in and dropped a couple more inches of snow. A low undercast would have obscured my flares, causing the rescue effort to take hours longer, or even days.

You have to be mentally prepared. I had often played little survival scenarios in my head. My wife long ago got sick of hearing me say, "Wow, can you imagine coming down here in a parachute?" when we were on the ski slopes or driving past fields covered with grapevine stakes. But in hindsight, even these few thoughts of survival were too little, and I was ill-prepared for an actual survival situation. I was particularly unprepared for the anxiety associated with disaster and immediately after ejection. I had memorized IROK, but I hadn't thought about how clearly I'd be thinking when I needed it.

The next several weeks were among the toughest of my life. Before this accident, I had never been anywhere near a Class A mishap, much less one involving a fatality. Surviving a mishap makes you acutely aware of the human aspect, both in the cause of mishaps and their cost.

Now and then, I stand in front of a ready room and discuss my midair. Even though some of my mistakes can seem comical, the mood is always somber at the end. In a way, I'm marked for life as a guy who survived a midair that should have killed him. Pilots looking at a survivor are forced to consider the possibility of being one themselves. I hope I help them be prepared, because when it happens, it's too late to prepare.

[Midair collisions are the second leading cause of fatal mishaps, right behind CFIT. Both are overwhelmingly caused by human factors.—Ed.]

LCdr. Duggan flies with VFA-147.

DECISIONS *Continued from page 13*

lengthy checklist to get the jet dirty via the backup methods and would need the extra gas. Also, the thought of having to make multiple approaches at Al Jaber because of poor visibility came to mind.

After a few stabs at the basket, we were in. We took 7,000 pounds, pulled out, let the wingman fuel up and proceeded south toward PSAB. The lone combined-system pump was hanging in there like a champ, and the flight system was going strong as well. A visual check by our wingman didn't reveal anything leaking, smoking or otherwise unusual about the exterior of our jet, so we all breathed a little more easily. About that time, the mission commander piped up from the back seat that we should call the Supervisor of Flying (SOF) and advise him of our situation. We Navy guys aren't used to using the SOF, but he's a great asset—kind of like a CATCC rep for the whole base.

We contacted the SOF and told him to expect a short-field arrestment. He immediately got the wheels in motion and set up holding and tanking for the rest of the OSW package so we could get in first. The prescribed corridor leading from Iraq to PSAB was taking us east of the field to avoid Dhahran's airspace. I figured I didn't need any undue delay, so we elected to play the 7700 card to get priority handling direct to PSAB. It worked.

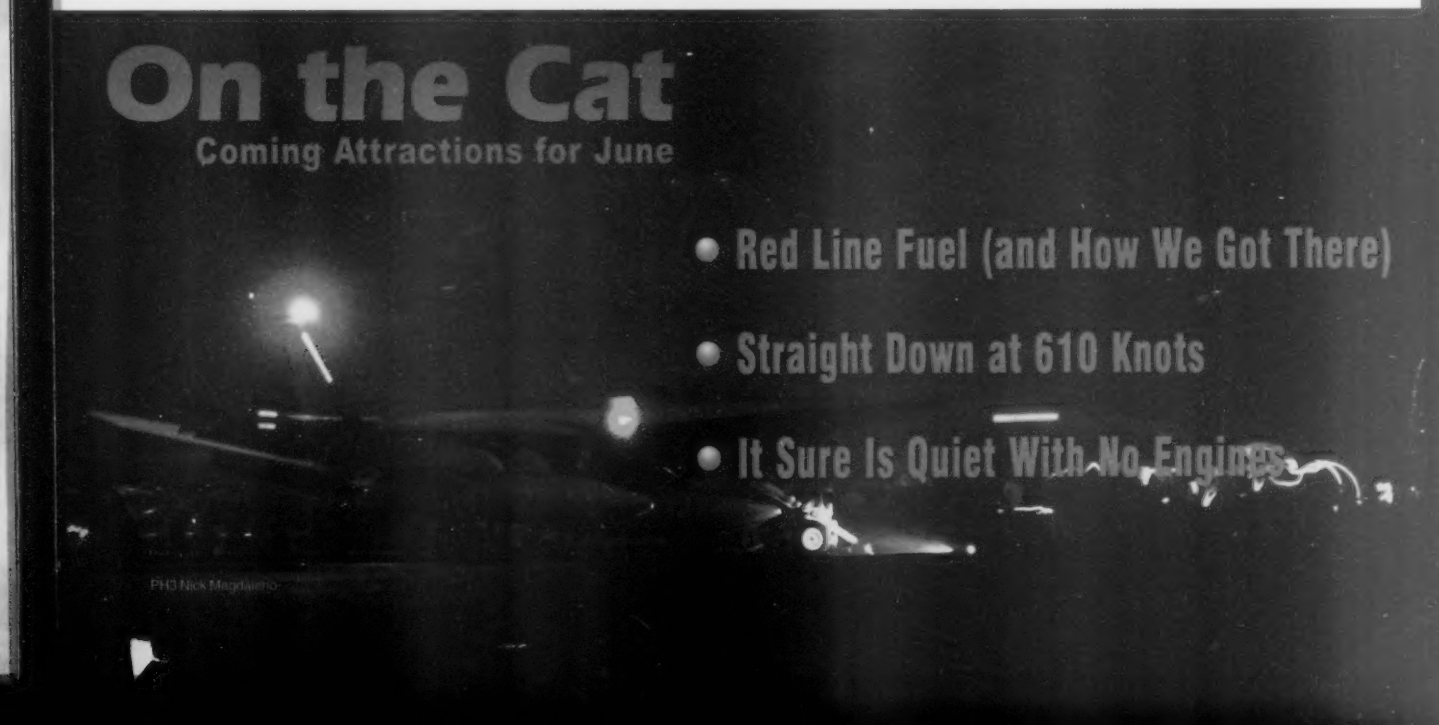
As we approached the field, ATC descended us and set us up for a PAR. Once level at 5,000 feet, with our wingman observing, we dirtied up. The lone combined pump strained under the load of the gear and flaps coming down, but sprang back up to 3,000 psi once everything was down and dirty. We detached the wingman for his own approach and completed our landing checklist.

Even though things were looking good, do we take the trap as a precaution? With all of OSW waiting to land behind us, I decided to leave the hook up and told the SOF. I'd seen pumps fail on touchdown before, so we watched closely as we landed to see how things went with our ailing hydraulics. If the pump quit, I'd lose normal brakes and have to go to the aux system. Fortunately, things went in our favor. We full-stopped, taxied clear of the runway, met the armada of USAF emergency vehicles and had our gear pinned before taxiing back to the line.

In retrospect, the most conservative route would have been to head for Al Jaber and take a trap. We did neither. All's well that ends well, right? Sort of. While what we did was perfectly legal, and our crew had fully discussed it and agreed, nobody would have faulted us for ending up in the gear in Kuwait. Of course, had we ended up wearing a souvenir KC-135 basket on our probe or, worse yet, ejecting 100 miles from PSAB because of some catastrophic hydraulic failure, we'd have been the recipients of a barrage of second-guessing.

We're paid to make decisions based on our training and experience every time we man up an aircraft. We made ours. What would you have done in similar circumstances?

LCdr. Jennings flies with VAQ-134.


On the Cat
Coming Attractions for June
• Red Line Fuel (and How We Got There)
• Straight Down at 610 Knots
• It Sure Is Quiet With No Engines
PH3 Nick Magdaleno

Classic

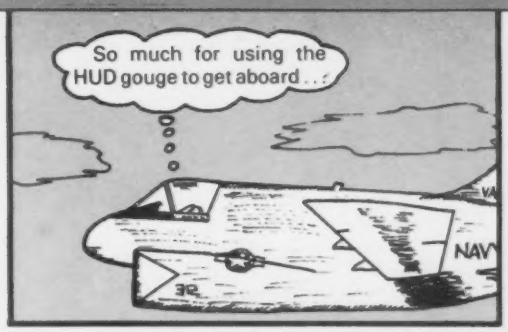
BROWNSHOES IN ACTION COMIX

"The kind real aviators like"

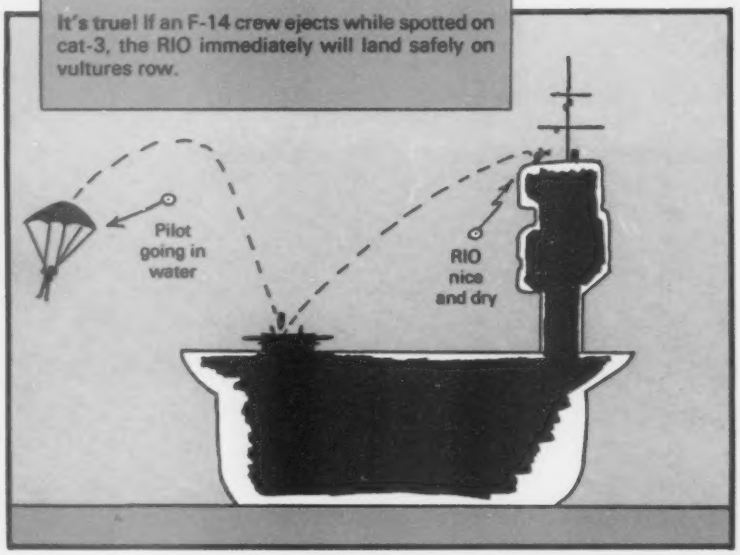
Contributed by Lt. Ward Carroll, VT-86

TRUE EJECTION TALES

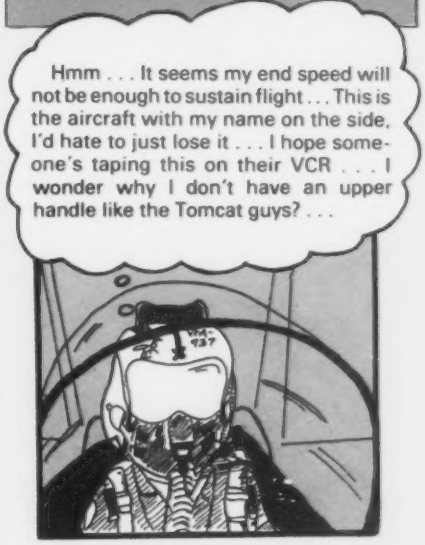
It's true! LCdr. Bud Freen, who insisted he was the originator of the "Kick the Tires, Light the Fires" saying, actually flew an entire hop with the ejection seat pulled for a corrosion inspection.

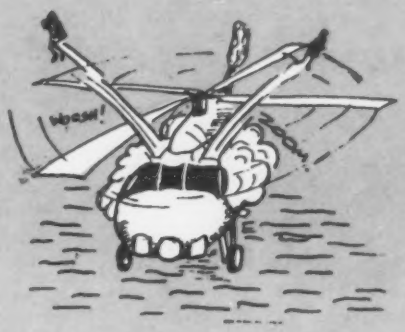


It's true! If an F-14 crew ejects while spotted on cat-3, the RIO immediately will land safely on vultures row.

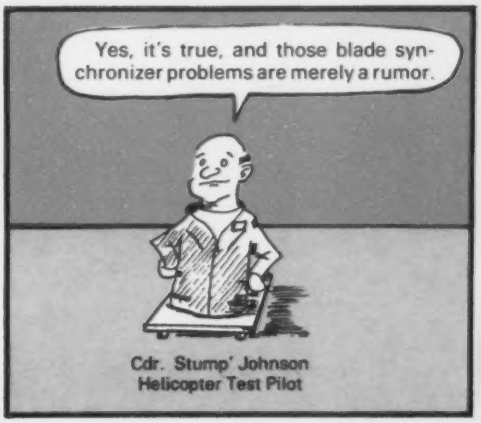


It's true! Although some ejections appear to be split-second decisions, "time compression" affords the aircrew the opportunity to go through a complex and objective thought process.


Hmm . . . It seems my end speed will not be enough to sustain flight . . . This is the aircraft with my name on the side, I'd hate to just lose it . . . I hope someone's taping this on their VCR . . . I wonder why I don't have an upper handle like the Tomcat guys? . . .



It's true! Most of your advanced helos have got ejection seats!



Cdr. Stump' Johnson
Helicopter Test Pilot

. . . But seriously folks, know when to go, then go!